

H.A

Notice of Allowability

Application No.

10/529,201

Examiner

Sung H. Pak

Applicant(s)

BUGAUD, MICHEL

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Preliminary Amendment filed 3/25/05.
2. ☒ The allowed claim(s) is/are 13-24.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date <u>6/06/2005</u> | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

DETAILED ACTION

Preliminary amendment filed 3/25/2005 has been entered. Claims 13-24 are pending.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 6/06/2005 has been considered.

Allowable Subject Matter

Claims 13-24 are allowed.

The following is an examiner's statement of reasons for allowance:

A device for tuning fiber optic grating is known in the art. US 2002/0154860 A1, US Patent 6,792,009 B2, and US Patent 5,999,671 are such tunable fiber optic grating devices. US Patent 5,889,901 to Anderson et al. is the *most relevant prior art* (most relevant figure reproduced below).

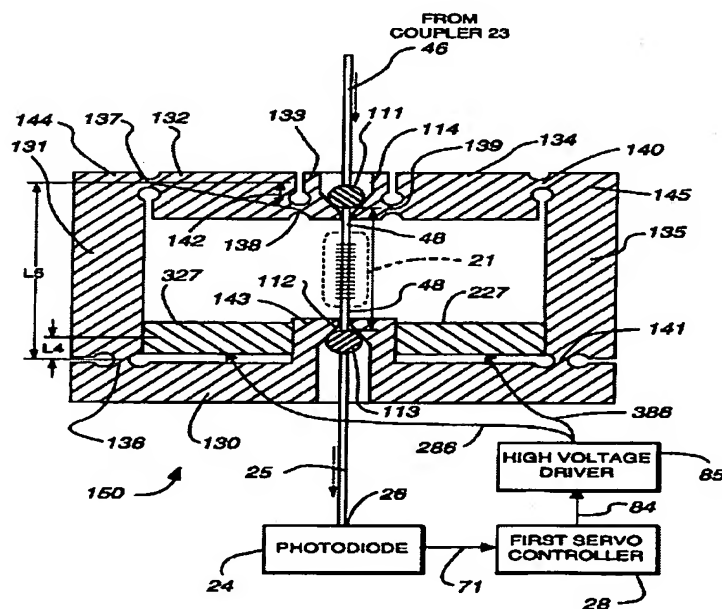


Fig. 2B

Among other things, Anderson patent discloses the use of a piezoelectric actuator ('327' and '227') which extends and applies forces to sidewalls '131' and '135' which in turn produces compression force on the optical fiber via moving the walls '132' and '134' to tilt downward. Nevertheless, Anderson differs from the claimed invention of the present application, in that it *fails to disclose* a "curved deformable element" and a "tube" having first and second ends which are connected to portions of the deformable element in a manner recited in claim 13 of the instant application. That is, Anderson *fails to disclose* the first and second end of the tube (wherein the tube contains the fiber grating), wherein the first side of the tube is attached to the first side of the deformable element, and the second side of the tube spaced apart from the second side of the deformable element while the second end of the fiber grating is attached to the second side of the deformable element as claimed in claim 13 and illustrated in Fig. 1.

A deformable element having a fiber optic grating disposed therein, ***by itself***, is known in the art. For example, Jones et al. (US 2004/0237648 A1), which bears close structural resemblance to the claimed structure, illustrates the use of a deformable element (most relevant figure reproduced below).

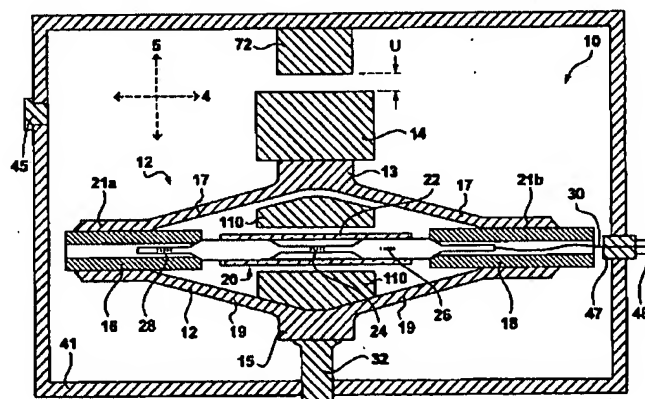


Figure 1A

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However, the device of Jones et al. is *NOT a tuning device* for fiber optic grating. Instead, it is a sensor device using a fiber optic grating to sense acceleration (and the induced movement due to acceleration) of a mass element '14' in the figure above. The movement of '14' due to acceleration causes the deformable element '12' to bend and impose compression on the fiber grating. Despite the close structural feature of the Jones et al. device relative to the claimed invention, *there is no motivation* for one of ordinary skill in the art to modify the device of Anderson to incorporate the deformable structure of Jones, since one is a fiber optic grating tuning device, and the other is a fiber optic sensor, respectively. In addition, *neither Anderson nor Jones references discloses* the structural relationship that exists between the tube element in relations to the deformable element as claimed in claim 13.

Further, a tube element having first and second ends wherein the first end is connected to the first side of a deformable element and second end is spaced apart from the second side of the deformable element, while first and second ends of optical waveguides are attached to the first and second ends of the deformable element, *by itself without any other structural limitations claimed in claim 13*, is known in the art. Fernald et al. (US 2002/0172446 A1) discloses such feature (most relevant figure reproduced below).

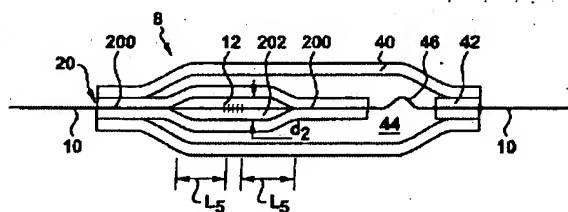


Fig. 3

However, Fernald reference discloses a temperature sensor device, NOT a fiber optic grating tuning device, and none of the elements recited in claims 13 of the instant application

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(such as piezoelectric actuator positioned in between the curved deformable element and the tube) is present in Fernald. As such, one of ordinary skill in the art would have no motivation to combine the teachings of Fernald with the teachings of Anderson device.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sung H. Pak whose telephone number is (571) 272-2353. The examiner can normally be reached on Monday- Friday, 9AM-5PM.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Sung H. Pak
Primary Patent Examiner
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